

SEQUENCE LISTING

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TECH CENTER 1600/2900

<N0> Meloen, Robert Hans

Oonk, Hendrica Berendina

<120> An Improved Peptide, Immunogenic Composition and Vaccine or Medical Preparation, a Method to Immunise Animals Against the Hormone LHRH, and Analogs of the LHRH Tandem Repeat Peptide and their Use as Vaccine

<130> 2183-4518US

<140> 09/659,983

<141> 2000-09-12

<150> US 09/274,048

<151> 1999-03-22

<150> US 08/981,557

<151> 1995-06-07

<150> PCT/NL96/00223

<151> 1996-06-06

<150> US 08/447,298

SUB  
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<151> 1995-06-07

<150> US 08/476,013

<151> 1995-06-07

<160> 13

<170> PatentIn version 3.0

<210> 1

<211> 10

<212> PRT

<213> Sus scrofa

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<222> (1)..(1)

<223> X=pyroglutamic acid

<220>

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<222> (10)..(10)

<223> X=Gly-NH2

Sub  
E2

<400> 1

Xaa His Trp Ser Tyr Gly Leu Arg Pro Xaa  
1 5 10

<210> 2

<211> 10

<212> PRT

<213> Homo sapiens

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<222> (1)..(1)

<223> X=pyroglutamic acid

<220>

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<222> (10)..(10)

<223> X=Gly-NH2

<400> 2

Xaa His Trp Ser His Gly Trp Tyr Pro Xaa  
1 5 10

<210> 3

<211> 20

Sub  
E2

<212> PRT

<213> artificial

<220>

<223> A peptide suitable for eliciting an immune response against forms  
GnRH/ LHRH

<220>

<221> PEPTIDE

<222> (1)..(1)

<223> X=pyroglutamic acid or Gln with attached tail of one or more addi  
tional amino acid

<220>

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<222> (3)..(3)

<223> X=Trp or N(indole)formyl-tryptophan

<220>

<221> SITE

<222> (10)..(11)

<223> there is either a direct bond or a spacer group between Gly at po  
sition 10 and Gln at position 11

<220>

Sub  
E2

<221> PEPTIDE

<222> (13)..(13)

<223> X=Trp or N(indole)formyl-tryptophan

<220>

<221> PEPTIDE

<222> (20)..(20)

<223> X=Gly-NH<sub>2</sub> or Gly with attached tail of one or more amino acids

<220>

<221> VARIANT

<222> (10)..(19)

<223> variable repeat sequence <10-19

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Xaa His Xaa Ser Tyr Gly Leu Arg Pro Gly Gln His Xaa Ser Tyr Gly  
1 5 10 15

Leu Arg Pro Xaa  
20

<210> 4

<211> 21

<212> PRT

<213> artificial

Sub  
E2

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GnRH/ LHRH

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<222> (1)..(1)

<223> X=pyroglutamic acid

<220>

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<222> (6)..(6)

<223> X=D-Lys

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<222> (11)..(11)

<223> X=Gly or Gly preceded by a spacer

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<222> (16)..(16)

<223> X=D-Lys

Sub  
E2

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<222> (21)..(21)

<223> X=Cys-NH2

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1 5 10 15

Leu Arg Pro Gly Xaa  
20

<210> 5

<211> 21

<212> PRT

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GnRH/ LHRH

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<223> X=pyroglutamic acid

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Sub  
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~~<222> (4)..(4)~~

~~<223> X=amino acid substitution~~

~~<220>~~

~~<221> PEPTIDE~~

~~<222> (6)..(6)~~

~~<223> X=D-Lys~~

~~<220>~~

~~<221> PEPTIDE~~

~~<222> (11)..(11)~~

~~<223> X=Gly or Gly preceded by a spacer~~

~~<220>~~

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~~<222> (14)..(14)~~

~~<223> X=amino acid substitution~~

~~<220>~~

~~<221> PEPTIDE~~

~~<222> (16)..(16)~~

~~<223> X=D-Lys~~



Sub  
E2

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<222> (21)..(21)

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Leu Arg Pro Gly Xaa  
20

<210> 6

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GnRH/ LHRH

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<223> X=pyroglutamic acid

Sub  
Ed

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<223> X=D-Lys

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<222> (8)..(8)

<223> X=amino acid substitution

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<223> X=Gly or Gly preceded by a spacer

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<222> (18)..(18)

Sub E2

<223> X=amino acid substution

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<222> (21)..(21)

<223> X=Cys-NH2

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1 5 10 15

Leu Xaa Pro Gly Xaa  
20

<210> 7

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GnRH/ LHRH

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Sub  
E27

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<222> (11)..(11)

<223> X=Gly or Gly preceded by a spacer

<220>

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<222> (20)..(20)

<223> X=amino acid substitution

<220>

<221> PEPTIDE

Sub E2

<222> (21)..(21)

<223> X=Cys-NH2

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Xaa His Thr Ser Tyr Xaa Leu Arg Pro Xaa Xaa His Thr Ser Tyr Xaa  
1 5 10 15

Leu Arg Pro Xaa Xaa  
20

<210> 8

<211> 42

<212> PRT

<213> artificial

<220>

<223> A peptide suitable for eliciting an immune response against forms  
GnRH/ LHRH

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<222> (1)..(1)

<223> X=Glu-NH2

<220>

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<222> (6)..(6)

Sub  
[2]  
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<222> (11)..(11)

<223> X=Gly or Gly preceded by a spacer

<220>

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<222> (16)..(16)

<223> X=D-Lys

<220>

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<222> (22)..(22)

<223> X=Glu-NH<sub>2</sub>

<220>

<221> PEPTIDE

<222> (27)..(27)

<223> X=D-Lys

<220>

Sub  
ED

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<222> (32)..(32)

<223> X=Gly or Gly preceded by a spacer

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<222> (37)..(37)

<223> X=D-Lys

<220>

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<222> (21)..(42)

<223> dimer formed between Cys 21 and Cys 42

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1 5 10 15

Leu Arg Pro Gly Cys Xaa His Thr Ser Tyr Xaa Leu Arg Pro Gly Xaa  
20 25 30

His Thr Ser Tyr Xaa Leu Arg Pro Gly Cys  
35 40

<210> 9

<211> 21

<212> PRT

SUP  
E2

<213> artificial

<220>

<223> A peptide suitable for eliciting an immune response against forms  
GnRH/ LHRH

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<222> (1)..(1)

<223> X=pyroglutamic acid

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<221> PEPTIDE

<222> (6)..(6)

<223> X=D-Lys

<220>

<221> PEPTIDE

<222> (11)..(11)

<223> X=Gly or Gly preceded by a spacer

<220>

<221> PEPTIDE

<222> (16)..(16)



SUB  
ED

<223> X=D-Lys

<220>

<221> PEPTIDE

<222> (21)..(21)

<223> X=Cys-NH<sub>2</sub>

<400> 9

Xaa His Thr Ser Tyr Xaa Leu Arg Pro Gly Xaa His Thr Ser Tyr Xaa  
1            5                    10                    15

Leu Ala Pro Gly Xaa  
                  20

<210> 10

<211> 21

<212> PRT

<213> artificial

<220>

<223> A peptide suitable for eliciting an immune response against forms  
GnRH/ LHRH

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<222> (1)..(1)

<223> X=amino acid substitution with acetyl group

SWD  
(2)

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<222> (6)..(6)

<223> X=D-Lys

<220>

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<222> (11)..(11)

<223> X=amino acid substitution

<220>

<221> PEPTIDE

<222> (16)..(16)

<223> X=D-Lys

<220>

<221> PEPTIDE

<222> (21)..(21)

<223> X=Cys-NH2

<400> 10

Xaa His Thr Ser Tyr Ser Leu Arg Pro Gly Xaa His Thr Ser Tyr Ser  
1 5 10 15

Sub  
Eq

Leu Arg Pro Gly Xaa  
20

<210> 11

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<212> PRT

<213> artificial

<220>

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GnRH/ LHRH

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<222> (1)..(1)

<223> X=pyroglutamic acid

<220>

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<222> (5)..(5)

<223> X=amino acid substitution

<220>

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<222> (6)..(6)

<223> X=D-Lys

8/10  
22

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<222> (11)..(11)

<223> X=Gly or Gly preceded by a spacer

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<222> (15)..(15)

<223> X=amino acid substitution

<220>

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<222> (16)..(16)

<223> X=D-Lys

<220>

<221> PEPTIDE

<222> (21)..(21)

<223> X=Cys-NH<sub>2</sub>

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SWD  
Ed

1

5

10

15

Leu Arg Pro Gly Xaa

20

<210> 12

<211> 21

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<220>

<223> A peptide suitable for eliciting an immune response against forms  
GnRH/ LHRH

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<222> (1)..(1)

<223> X=pyroglutamic acid

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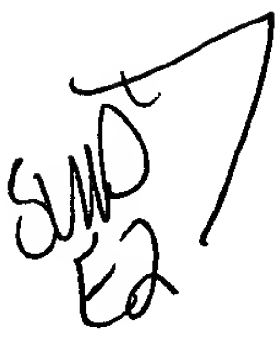
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<223> X=D-Lys

<220>

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<222> (7)..(7)

*SMD  
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<222> (11)..(11)

<223> X=Gly or Gly preceded by a spacer

<220>

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<223> X=D-Lys

<220>

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<222> (17)..(17)

<223> X=amino acid substitution

<220>

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<222> (21)..(21)

<223> X=Cys-NH<sub>2</sub>

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8110  
Xaa His Thr Ser Tyr Xaa Xaa Arg Pro Gly Xaa His Thr Ser Tyr Xaa  
1 5 10 15

Xaa Arg Pro Gly Xaa  
20

<210> 13

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GnRH/ LHRH

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<223> X=pyroglutamic acid

<220>

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<222> (6)..(6)

<223> X=D-Lys

<220>

<221> PEPTIDE

Ex  
Sub  
Ed

<222> (9)..(9)

<223> X=amino acid substitution

<220>

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<223> X=Gly or Gly preceded by a spacer

<220>

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<222> (16)..(16)

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<220>

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<222> (21)..(21)

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1 5 10 15

Leu Arg Xaa Gly Xaa  
20